

Claim Rejection – 35 USC § 112

3. The Office Action points out that claim 8 – 12 are rejected under 35 U.S.C. 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action continues that regarding claim 8, line 10; claim 9 line 2; the phrases “bellowslike” renders the claim(s) indefinite because the claim(s) include(s) element not actually disclosed (those encompassed by “bellowslike”), thereby rendering the scope of the claim(s) unascertainable.

Applicant thank the Examiner for the kind suggestions and are herewith amending the claims accordingly. The phrases “bellowslike” was substituted by the phrases “having a shape of bellows”.

Claim Rejection – 35 USC § 103

5. The Office Action rejects claims 1 – 20 under 35 U.S.C. 103(a) as being unpatentable over Melocco (USPN 5,901894) in view of Dohl et al. (USPN 5,687,899).

The Office Action continues that in reference to claim 1, Melocco discloses an actuated piston tool with piston automatic return, comprising an external barrel (1) with a guiding barrel (7) situated there within the guiding barrel (7), operatively connected therewith, and means for automatic return of piston means from its fastening position (figure 3) to its firing position (figure 2), situated on piston shank (21) between piston head (9) and fastener guide (6), the means for automatic piston return is one-piece elastic returning bush (11) made of elastomeric material (column 2, lines 8 – 10) in the shape of bellow, whose diameters both external and internal are regularly, creating uniformly spaced swellings and narrowings of wave like structure

(figure 2 - 3); column 1, lines 59 - 67; column 4, lines 6 - 17, 23 - 28). Melocco's disclosed piston tool is operated by high-pressure gas not power. Dohl et al. teaches a power actuate piston tool with piston automatic return. The Office Action concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the high-pressure gas used to actuate the power tool of Melocco to use power as taught by Dohl et al.

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not provide using an initial blocking position of piston means to determine a length of a one-piece elastic returning bush (7) dependent on shape and properties of material of the one-piece elastic returning bush as required in claim 1 as amended herewith. The walls of the bellows fold during moving of the piston from the firing position to the fastening position and do not press on an outer surface of the piston (1) allowing the piston (1) to reach the fastening position. To the contrary, in Melocco's construction the outer diameter of the deformable member (11) becomes larger and the inner diameter of the deformable member (11) becomes smaller when squeezed thereby the piston is braked when moves from the firing position to the fastening position. Furthermore claim 1 of the present invention requires that the one-piece elastic returning bush (7) has a shape of bellows and internal bellows diameter are varied created uniformly spaced swellings and narrowings.

Additionally the applicants herewith enclose examples of using the bellows in the photography apparatus and in the accordion.

The Office Action states regarding claim 2 and its limitations as stated above, that the modified apparatus of Melocco

discloses a power actuated piston tool with piston automatic return wherein the walls of returning bush (11) are approximate in shape to a sinusoid, or to a stack of frusto-spherical segments, or to a stack of frusto-conical segments, or to a stack of barrel shape segments and/or other surface of revolution segments (figures 2 – 3; column 1, lines 59 – 67, column 4, lines 6 – 17, 23 – 28).

The rejection is respectfully challenged since the Melocco reference, like the Dohl et al. reference, does not refer that a one-piece elastic returning bush (7) has a shape of a bellows. Furthermore claim 1 of the present invention requires that an internal bellows diameters are regularly varied creating uniformly spaced swellings and narrowings. The Melocco reference states only in column 1, lines 59 – 67 that a return element is made as a deformable member having a substantially close cellular or porous structure, in column 4, lines 6 - 17 and Figs. 1 and 2 that the deformable member (11) has a plurality of spaced circular grooves (12) on an outer surface of the deformable member (11) but not on an inner surface. Furthermore the cross-section of the grooves is substantially V-shaped and there is no way that the deformable member can be like a stack of barrel-shaped segments or truncated-spherical segments as required in claims of the present invention.

The Office Action states with respect to claim 3 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein the maximal internal diameter of at least one segment of returning bush (11) at its both ends, is of smaller size than respective diameter of remaining segments (figure 2, column 2, lines 65 – 67; column 3, lines 1 – 5).

The rejection is respectfully traversed since the Melocco reference teaches in Fig. 2 as well as in Fig. 3 that a deformable member (11) has a borehole with a uniformly inner diameter. Furthermore the Melocco reference teaches in column 2, lines 65 – 67 and in column 3, lines 1 – 5 that the outer diameter of the deformable member (11) is made smaller than the inner diameter of the piston guide (7) but says nothing about the maximum internal diameter. In contrast claim 3 and Fig. 5 of the present invention requires that a maximum internal diameter (D4) of at least one segment of the one-piece returning bush (7) at its ends is smaller than a maximum diameter (D2) of the remaining segments of the one-piece returning bush (7).

The Office Action states in reference to claim 4 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein the end segments walls of returning bush (11) are thicker than other segment walls (figure 2; column 2, lines 32 – 35, 65 – 67; column 3, lines 1 – 5; column 4, lines 6 – 17).

The rejection is respectfully objected to since the Melocco reference, like the Dohl et al. reference, does not discuss difference in thickness of walls of end segments and middle segments. Melocco's reference states only in column 2, lines 32 – 35 that the distance between separate grooves and their depth as well as their location can be uniform or variable, in column 2, lines 65 – 67; column 3, lines 1 – 5 that the outer diameter of the deformable member is made smaller than the inner diameter of the piston guide and in column 4, lines 6 – 17 the deformable member (11) has a smaller outer diameter than an inner diameter of the guide bore (20).

The Office Action states regarding claim 5 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein the internal end surface of external segments of returning bush (11) is markedly curved outside in such a way, that the position of curvature points is clearly distanced from the returning bush face (figures 2 – 3; column 4, lines 6 – 17).

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not refer to the internal end surface. Melocco's reference teaches only in Figs. 2 and 3 and in column 4, lines 6 – 17 that at ends of the deformable member (11) are placed washers (14, 15). In contrary claim 5 and Fig. 5 of the present invention requires that the inner end surface of external segments of returning bush (7) is markedly curved.

The Office Action states with reference to claim 6 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein the length of the returning bush (11) is selected in such a way, that after initial blocking, the piston shank (8) end face does not reach its extreme forward position and remains at a distance from the base, the distance greater than the head height of fastening element (column 4, lines 18 – 22).

The rejection is respectfully denied since Melocco's reference, like the Dohl et al. reference, does not teach that after initial blocking the piston shank (1) end face does not reach its extreme forward position. To the contrary, Melocco's reference states in column 4, lines 18 – 22 that a driving piston (21) projects beyond the front end surface of a stud guide (6). Furthermore the claim 6 of the present invention requires that

the distance between the end face of the piston shank (1) and the end face of the fastener guide (5) is greater than the head height of fastening element (6). The applicants again point out that the piston (1) of the present invention remains short of the barrel front face.

The Office Action states in reference to claim 7 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein the maximal external diameter of the return bush (11) is smaller enough than the internal diameter of the guiding barrel (7), that after the initial blocking of the returning bush (11), its external diameter still remains smaller than the internal diameter of the guiding barrel (7), thus preserving the small clearance (column 4, lines 23 – 28).

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not teach about a clearance between the outer surface of the returning bush (7) and the inner surface of the guiding barrel (2) in the initial blocking position of the piston (1). In contrary, the Melocco reference teaches only in column 4, lines 23 – 28 that the outer diameter of the compressed member (11) becomes substantially equal to the inner diameter of the guide bore (20) of the piston guide (7). It is disadvantage of the construction of Melocco that the stem (8) has a larger diameter at the end connected to the head (9) which, according to applicants' experience, causes blocking the driving piston (21) in the fastening position of the stem (8) because the outer diameter of the deformable member (11) becomes larger and the inner diameter of the deformable member (11) becomes smaller thus the created friction forces are larger than the elasticity forces of the deformable member (11).

The Office Action states regarding claim 8, that Melocco discloses a power actuated piston tool with piston automatic return comprising an outer barrel (1) having a firing chamber (19) at a first end; a guiding (7) barrel mounted in the outer barrel; a fastener guide (6) having an outer surface at a thin end and mounted at a thick part in the guiding barrel (7) and with the thin end standing out from the outer barrel; a piston (21) provided with a piston head (9) placed in the guiding barrel (7) and a piston shank (8) inserted in the fastener guide (6) wherein the piston is movably positioned between a firing position (figure 2) and a fastening position (figure 3); a firing-pin assembly mounted at the first end of the outer barrel (figures 2 - 3; column 3, lines 37 - 40) and a bellowslike hollow element (11) for an automatic return of the piston from the fastening position (figure 3) to the firing position (figure 2) and situated on the piston shank (8) between the piston head (9) and the fastener guide (6) and made of elastomeric material (column 2, lines 8 - 10) wherein an outer diameter of the bellowslike hollow element (11) and an internal diameter of the bellowslike hollow element (11) are regularly varied creating uniformly spaced swellings and narrowings running circularly on an outer surface and an inner surface of the bellowslike element (11) and wherein between each two neighboring narrowings is formed a segment with a sinusoidal or a frusta-spherical or a frusta-conical or a barrel wall contour. Melocco's disclosed piston tool is operated by high-pressure gas not power. Dohl et al. teaches a power actuate piston tool with piston automatic return. The Office Action concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the high-pressure gas used to actuate the power tool of Melocco to use power as taught by Dohl et al.

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not teach that an internal diameter of the hollow element (7) are regularly varied creating uniformly spaced swellings and narrowings running circularly on an inner surface of the hollow element (7). Furthermore the claim 8 of the present invention as herewith amended requires that in the initial blocking position of the piston a sum of wall thicknesses of all segments of the hollow element and a length of the fastener guide is slightly larger than a sum of a length of the piston shank and a thickness of a fastener head.

The Office Action states with respect to claim 9 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein a maximal inner diameter of at least one said segment of the bellowslike hollow element (11) at its both ends is smaller than an inner diameter of remaining segments.

The rejection is respectfully traversed since the Melocco reference teaches in Fig. 2 as well as in Fig. 3 that a deformable member (11) has a borehole with a uniform inner diameter. Claim 9 of the present invention requires that a maximum internal diameter (D4) of at least one segment of the one-piece returning bush (7) at its both ends is smaller than a maximum diameter (D2) of remaining segments of the one-piece returning bush.

The Office Action states in reference to claim 10 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein walls of outer segments of the bellowslike hollow element (11) are thicker than walls of inner segments.

The rejection is respectfully traversed since the Melocco reference teaches in Fig. 2 as well as in Fig. 3 that the segments of the deformable member (11) have the same maximal outer diameter as well a borehole with a uniform inner diameter. Claim 10 of the present invention requires that the walls of outer segments of the hollow element (7) are thicker than walls of inner segments. The thickness of the walls can be calculated taking into account a maximum internal diameter (D4) of the segment of the hollow element (7) at its ends and a maximum diameter (D2) of the remaining segments of the hollow element (7).

The Office Action states regarding claim 11 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein an inner end surface of outer segments of the bellowslike hollow element (11) is outwardly curved.

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not teach about the internal end surface. The Melocco reference teaches in Figs. 2 and 3 that at ends of the deformable member (11) are placed washers (14, 15). In contrary claim 11 and Fig. 5 of the present invention requires that the inner end surface of external segments of the hollow element (7) is markedly curved.

The Office Action states with reference to claim 12 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein a sum of wall thickness of all segments of the bellowslike hollow element (11) and a length of the fastener guide (6) is slightly larger than a sum of a length of the piston shank (8) and a thickness of a fastener head (column 2, lines 29 – 35) thereby a piston shank (8) end face is distanced

from the outer surface of the fastener guide (6; figure 3) slightly more than the thickness of the fastener head in an initial blocking position of the piston (21; column 4, lines 18 – 22).

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not refer to the initial blocking position of the piston. The Melocco reference says in column 4, lines 18 – 22 that in the Fig. 3 the piston (21) is shown in its operational or setting position in which the stem (8) of the driving piston (21) projects beyond the front end surface of the stud guide (6). In contrast, the claim 12 and Fig. 2 of the present invention requires that the end of the piston (1) remains short of the front face of the fastener guide (5) in an initial blocking position of the piston (1).

The Office Action states in reference to claim 13, that Melocco discloses a power actuated piston tool with piston automatic return comprising an outer barrel (1) having a firing chamber (19) at a first end; a guiding barrel (7) mounted in the outer barrel; a fastener guide (6) having an outer surface at a thin end and mounted at a thick part in the guiding barrel (7) and with the thin end standing out from the outer barrel; a piston (21) provided with a piston head (9) placed in the guiding barrel (7) and a piston shank (8) inserted in the fastener guide (6) wherein the piston is movably positioned between a firing position (figure 2) and a fastening position (figure 3); a firing-pin assembly mounted at the first end of the outer barrel (figures 2 – 3; column 3, lines 37 – 40) and a one-piece hollow element (11) formed of segments and situated on the piston shank (8) between the piston head (9) and the fastener guide (6) and made of elastomeric material (column 2, lines 8 – 10) wherein a sum of a length of the fastener guide (6) and a length of the one-piece hollow element (11) in a state when wall surfaces of neighboring

segments of the one-piece element (11) are in introductory contact is slightly larger than a sum of a length of the piston shank (8) and a thickness of a fastener head thereby a piston shank (8) end face is distanced from the outer surface of the fastener guide (6) slightly more than the thickness of the fastener head in an initial blocking position of the piston (figure 3; column 4, lines 6 – 22). Melocco's disclosed piston tool is operated by high-pressure gas not power. Dohl et al. teaches a power actuate piston tool with piston automatic return. The Office Action concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the high-pressure gas used to actuate the power tool of Melocco to use power as taught by Dohl et al.

The rejection is respectfully denied since the Melocco reference, like the Dohl et al. reference, does not mention that an internal diameter of the hollow element (7) are regularly varied creating uniformly spaced swellings and narrowings running circularly on an inner surface of the hollow element (7). Furthermore, the claim 13 of the present invention, as herewith amended, requires that in a position when wall surfaces of neighboring segments of the one-piece element (11) are in introductory contact a sum of wall thicknesses of all segments of the hollow element and a length of the fastener guide is slightly larger than a sum of a length of the piston shank and a thickness of a fastener head.

The Office Action states regarding claims 14, 15, 16, 17 and 18 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein a wall of each segment of the segments of the one-piece hollow element (11) has a sinusoidal, a frustum of sphere, a frustum of a cone, a barrel, a frustum of

barrel, respectively, profile (figure 2; column 1, lines 59 – 67; column 2, lines 1 – 7, 32 – 35).

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not teach that a sum of a length of the fastener guide and a length of the one-piece hollow element in a state when wall surfaces of neighboring segments of the one-piece element are in an introductory contact is slightly larger than a sum of a length of the piston shank as required in claim 13 on which the claims 14, 15, 16, 17 and 18 depend.

The Office Action states in reference to claim 19 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein an inner end surface of outer segments of the one-piece hollow element is outwardly curved (figure 2; column 1, lines 59 – 67; column 2, lines 1 – 7).

The rejection is respectfully traversed since the Melocco reference, like the Dohl et al. reference, does not teach about the internal end surface. The Melocco reference teaches in Figs. 2 and 3 that at ends of the deformable member (11) are placed washers (14, 15). To the contrary, claim 19 and Fig. 5 of the present invention requires that the inner end surface of external segments of the one-piece element (7) is markedly curved.

The Office Action states regarding claim 20 and its limitations as stated above, that the modified apparatus of Melocco discloses a power actuated piston tool with piston automatic return wherein walls of outer segments of the one-piece hollow element are thicker than walls of inner segments (figure 2; column 1, lines 59 – 67; column 2, lines 1 – 7, 32 – 35).

The rejection is respectfully traversed since Melocco's reference teaches in Fig. 2 as well as in Fig. 3 that the segments

of the deformable member (11) have the same maximum outer diameter as well a borehole with a uniform inner diameter. Claim 20 of the present invention requires that the walls of outer segments of the hollow element (7) are thicker than walls of inner segments. The thickness of the walls can be calculated taking into account a maximal internal diameter (D4) of the segment of the hollow element (7) at its ends and a maximal diameter (D2) of remaining segments of the hollow element (7).

Conclusion

6. The Office Action points out that the prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Applicants submit that the prior art made of record neither anticipates nor renders obvious the present invention.

Reconsideration of all outstanding rejections is respectfully requested.

If the Examiner should not be able to find a certain element of applicants' claims in search of the state of the art and such element is deemed by the Examiner to be necessary for forming a basis for a rejection, then the Examiner is invited to inform the applicants of such element in order to allow the applicant to fully meet his disclosure requirement in view of innumerable mental and hypothetical possibilities of combining reference to allege obviousness of individual claims. In particular, in view of different levels of familiarity of inventors with the information disclosure requirements of the United States Patent and Trademark Office developed in recent years and apparently still developing, which disclosure requirements are believed to be unique in the world, any help and suggestions regarding possible problems seen by the Examiner are welcome.

All claims as presently submitted are deemed to be in form for allowance and an early Notice of Allowance is earnestly solicited.

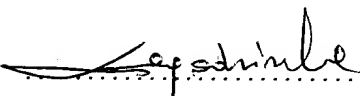
Respectfully submitted by applicants and inventors:

Łagodziński Marek, ul. Ćwiklińskiej 2 m 19, 92-508 Łódź, Poland

Łagodzińska Bogusława, ul. Ćwiklińskiej 2 m 19, 92-508 Łódź,
Poland

Rogowski Zbigniew, ul. Dąbrówki 17 m 25, 92-413 Łódź, Poland


.....
Łagodziński Marek


.....
Łagodzińska Bogusława


.....
Rogowski Zbigniew